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Forage News [2016-03]

Department of Plant and Soil Sciences, University of Kentucky

COOPERATIVE EXTENSION SERVICE
UNIVERSITY OF KENTUCKY COLLEGE OF AGRICULTURE, FOOD AND ENVIRONMENT, LEXINGTON, KY 40546

FORAGE NEWS

UNIVERSITY OF KENTUCKY College of Agriculture, Food and Environment

For more forage information, visit our UK Forage Extension Website at: **http://www.uky.edu/Ag/Forage/**

March 2016

S. Ray Smith, Extension Forage Specialist and Krista Lea, MS

Special Forage Seminar: Keynote Speaker Dr. Joe Bouton

Dr. Joe Bouton is known worldwide for his practical approach to forage breeding. His focus has been to develop varieties that are adapted and persistent and that make a profit for farmers across the southeast. Through his work at the University of Georgia and the Noble Foundation, he has released more groundbreaking forages varieties than any other breeder in the last 25 years, including Alfagraze alfalfa, MaxQ tall fescue and Durana and Patriot white clover. Chris Agee will emphasize the importance of seed quality for novel tall fescue varieties and Dr. Ray Smith will discuss how to select proven forage varieties for Kentucky farms. The event will be held at the E.S. Good Barn on the UK Campus (1451 University Drive, Lexington).

Schedule:
6:30 – Registration and refreshments sponsored by the Kentucky Forage and Grassland Council and Pennington Seed
7:00 – Welcome
7:10 – Dr. Joe Bouton, Professor Emeritus, UGA
8:00 – Chris Agee, Research director, Pennington Seed
8:30 – Dr. Ray Smith, Forage Specialist, UK
This event is free but RSVP is requested before March 7th at http://ForageSeminar.Eventbrite.com or call 859-257-0597.

Annual Ryegrass and Fragipan Soil Remediation Research

Researchers at UK Dept. of Plant and Soil Sciences are working to discover a method of remediating fragipan soils that is effective and economical. Drs. A. Karathansis, Chris Matocha, John Grove and Lloyd Murdock began this project in 2014 with a goal to dissolve at least the top of the fragipan layer and improve crop production by 10% or more on about 1.5 million acres of croppable land in Kentucky.

The fragipan is a naturally occurring restrictive layer that stops water movement and root growth; its depth ranges from 12 to 32 inches. The fragipan itself is a silt loam soil that has become cemented. If the cementation can be dissolved it would be very similar to the soil above it. The goal of this project is to try to dissolve the cementation and make a deeper soil that will hold more water for summer growing crops. This would also reduce waterlogging in winter and early spring which would make the soil better suited for winter crops and better able to support mechanical and animal traffic this time of year.

"*When this project started almost no research had been reported on how the fragipan can be effectively broken apart and made into soil. Therefore, our search started as if trying to find something in a dark room. Progress is being made faster than expected on finding solutions to remediate the fragipan. Different plants and chemical compounds are now being tested and new possibilities are being discovered in the laboratory. Greenhouse trials are indicating that some of them are working. Field trials are beginning to show positive increases in yield for the annual ryegrass treatment."* Dr. Lloyd Murdock, a member of the research team on this project.

Annual ryegrass and 4 chemical compounds have been found to break apart the fragipan in our laboratory. We are, at the present time, focusing on annual ryegrass because it seems to be the most practical and economical. Preliminary data suggests that growing annual ryegrass as a cover crop over multiple years could significantly increase soybean yields. Other information suggests that annual ryegrass breaks the fragipan a bit each year, so the effect seems cumulative. Using annual ryegrass for 10 to 15 years may result in increased crop yields of more than 30%. More research is needed to definitely prove this effect is real and find combinations of methods that might increase the rate of the remediation. Dr. Murdock says "there is still much more to be learned but there are definitely some bright spots". ~ *UK Fragipan Remediation Progress Report 2016*

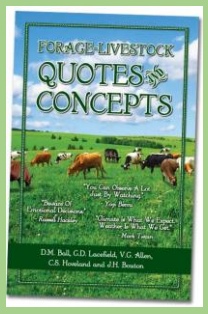
Featured Publication: Sampling for the Tall Fescue Endophyte in Pasture or Hay Stands (PPA-30)

The best ways to determine the level of infection within a stand is to examine individual tall fescue tillers sampled from the field microscopically or for evidence of the fungus or to use a recently developed immunoblot laboratory procedure. In Kentucky, the Division of Regulatory Services, located at UK, offers a service to test tall fescue infection level. To obtain useful information

samples must be collected in accordance with the guidelines given here. The full publication and others can be found at www.uky.edu/ag/forage under the publication tab.

Forage News Quote of the Month
"Silage and Hay take Nutrients Away"

A Key to profitable forage livestock production is to provide adequate nutrients for good forage growth. Fertility requirements for a hay or silage crop are vastly different that for grazed forages, even if the pasture and hay crops are the same species. When forage is harvested mechanically, it is usually taken to a barn, silo or other storage facility, or to a feeding site at another location. Thus, virtually all of the nutrients in the top growth of the forage plants are moved to another location, possibly even away from the farm. To purchase the Forage-Livestock Quotes and Concepts book, contact KFGC at ukforageextension@uky.edu. Books are $5 each.



Heart of America Grazing Conference Highlight:
"Lacefield MaxQII" Novel Tall Fescue

Novel endophyte tall fescue varieties have been available for forage growers for 15 years, since the release of 'Jesup MaxQ'. Endophyte-free tall fescue varieties have been shown to be less tolerant to stresses such as drought, low soil fertility, and overgrazing, but can be viable options in less stressful locations and with proper management (primarily maintenance of soil fertility and prevention of overgrazing). Early results with new ('novel') endophyte-containing tall fescue varieties were more encouraging than experiences with endophyte-free varieties, so Jesup MaxQ was released in 2000. Over the past several years more novel endophyte tall fescue varieties have been developed.

The original source material for the experimental KYFA9301 came from an old variety trial at the UK Spindletop Agronomy Research Farm in Lexington that had been harvested during 1987-88 for 18 consecutive months, at monthly intervals, then mowed as turf for four years. In 1992 tillers were collected from plots that had maintained good stands, and were tested to confirm endophyte-free status. Most of the 22 selected parental clones were from endophyte-free KY31+ and related entries in the yield trial. KYFA9301 demonstrated excellent seedling vigor, a desirable maturity (3-5 days later than KY31+), high yield potential, and good grazing tolerance (as an endophyte-free variety).

To make KYFA9301 even better Dr. Tim Phillips decided to partner with Grasslanz Technology, Ltd., Palmerston North, New Zealand, to insert the novel endophyte strain AR584 (U.S. Patent 6,111,170) into KYFA9301. Performance testing of KYFA9301/AR584 began in 2005 in university forage variety trials. After reselecting for improved seed yield in Oregon and additional variety testing, this experimental variety was released in 2015 by the KY Agricultural Experiment Station. During the years it was grown in variety trials, it has gone by several names: KYFA9301/AR584. AgRFA150, AgRFA1502, and AgR1502. It was officially named 'Lacefield' in recognition of the distinguished career of Dr. Garry Lacefield, Extension Professor Emeritus at UK. This new variety will be commercialized by Pennington Seed, Inc. and sold as 'Lacefield MaxQ II' with commercial seed available in 2 years.

In Kentucky a two-year grazing experiment was completed in 2009 with steers on paddocks planted to the following tall fescue treatments: KY 31+, Jesup MaxQ, Lacefield MaxQ II, and Lacefield E- (endophyte free). Lacefield MaxQ II, like the other two non-toxic fescue treatments, improved steer body weight gains and avoided fescue toxicosis symptoms compared to KY 31+. Lacefield MaxQ II provided greater carrying capacity in late June and July compared to Jesup MaxQ. Steers grazing Lacefield MaxQ II and the other two non-toxic varieties showed no decrease in serum prolactin concentrations or increased rectal and skin temperature (indicators of fescue toxicosis) as compared to steers grazing KY 31+.

Five tall fescue pastures (KY31+, Jesup MaxQ, GA-186/AR584, PDF/AR584, and Lacefield MaxQ II) were used in a grazing study in Mississippi during 2009-2010 that compared steer growth performance, toxicity, feedlot performance, and carcass traits). Despite varying levels of contamination by KY31+ volunteer plants in these pastures (5.5-30.3%), all of the novel endophyte tall fescue varieties showed no fescue toxicosis compared to responses seen with the pure KY31+ pasture (depressed serum prolactin concentrations, elevated rectal temperature, and higher hair coat scores). Spring grazing ADG for Lacefield MaxQ II was nearly twice that seen for KY 31+ (1.02 vs. 0.53 kg/head/day). ADG for Lacefield MaxQ II was also greater than that seen with Jesup MaxQ and GA-186-AR584 (0.90 and 0.91 kg/head/day). There were no significant differences in fall grazing ADG among the novel endophyte tall fescue varieties, but all non-toxic lines were about 40% greater than that seen with Kentucky 31+ (0.70 vs 0.50 kg/day).

Lacefield MaxQ II has been tested in numerous university field trials for forage yield, winter hardiness, seedling vigor, and persistence. It has proven to be widely adapted, surviving winters in Wisconsin and Pennsylvania, and summers in Georgia and Mississippi. It has performed well in yield trials in Wisconsin, Pennsylvania, Illinois, Tennessee, Virginia, Kentucky, Georgia, and Mississippi. Many of these trials are accessible through the UK Forage website under "Variety Trial–other states. *~ Dr. Tim Phillips, UK. Summarized from 2016 Heart of America Grazing Conference. See Proceedings section of the UK Forage Website for the complete article with references.*

Important Reminder: February is the month to frost seed clovers in KY. So frost seed now, or rent a no-till drill when seeding between early March and early April.

Upcoming Events (full details at UK Forage Website - www.uky.edu/Ag/Forage)

MAR 8 Special Forages Seminar, Lexington, KY
MAR 29 Alliance for Grassland Renewal, Mt. Vernon, MO
MAR 30 Alliance for Grassland Renewal, Columbia, MO
MAR 31 Alliance for Grassland Renewal, Linneus, MO
APR 12 Adv. Grazing School, Versailles, KY
MAY 2-4 Southern Pasture and Forage Crop Improvement Conference. Monroe, LA
MAY 17-18 KY Grazing School, Versailles, KY
JULY 17-22 International Rangeland Congress, SK, Canada.